**Amendments To The Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing Of Claims**

1–19 (canceled)

20 (allowed): A method of producing linear α-1,4 glucans comprising using a protein having the enzymatic activity of an amylosucrase that is coded for by a DNA molecule comprising a first DNA sequence encoding said protein, wherein said first DNA sequence has more than 60% sequence identity to a second DNA sequence selected from the group consisting of:

(a) a DNA sequence coding for a protein comprising SEQ ID NO:2;

(b) the coding region of SEQ ID NO:1;

(c) a DNA sequence encoding a protein having amylosucrase activity in the DNA insert of plasmid pNB2 (Deutsche Sammlung von Mikroorganismen (DSM) 9196);

(d) a DNA sequence coding for a protein encoded by the DNA insert of plasmid pNB2 (DSM 9196);

(e) a part of any one of the DNA sequences of (a)–(d) coding for a protein having the enzymatic activity of an amylosucrase; and

(f) a full length complement of the DNA sequence of any one of (a)–(e);

incubating said protein encoded by said first DNA sequence with sucrose under conditions that allow said protein to produce linear α-1,4 glucans; and

isolating the linear α-1,4 glucans.

21 (allowed): A method of producing fructose comprising using a protein having the enzymatic activity of an amylosucrase that is coded for by a DNA molecule comprising a first DNA sequence encoding said protein, wherein said first DNA sequence has more than 60% sequence identity to a second DNA sequence selected from the group consisting of:

(i) a DNA sequence coding for a protein comprising SEQ ID NO:2;

(ii) the coding region of SEQ ID NO:1;

(iii) a DNA sequence encoding a protein having amylosucrase activity in the DNA insert of plasmid pNB2 (DSM 9196);

(iv) a DNA sequence coding for a protein encoded by the DNA insert of plasmid pNB2 (DSM 9196);

(v) a part of any one of the DNA sequences of (i)–(iv) coding for a protein having the enzymatic activity of an amylosucrase; and

(vi) a full length complement of the DNA sequence of any one of (i)–(v);

incubating said protein encoded by said first DNA sequence with sucrose under conditions that allow said protein to produce fructose; and

isolating the fructose.

22–32 (canceled)

33 (allowed): A process for the production of linear $\alpha$-1,4 glucans, fructose and/or fructose syrup comprising the steps of:

(a) culturing a host cell comprising a protein having the enzymatic activity of an amylosucrase, that is encoded for by a DNA molecule comprising a first DNA sequence encoding said protein, wherein said first DNA sequence has more than 60% sequence identity to a second DNA sequence selected from the group consisting of:

(i) a DNA sequence coding for a protein comprising SEQ ID NO:2;

(ii) the coding region of SEQ ID NO:1;

(iii) a DNA sequence encoding a protein having amylosucrase activity in the DNA insert of plasmid pNB2 (DSM 9196);

(iv) a DNA sequence coding for a protein encoded by the DNA insert of plasmid pNB2 (DSM 9196);

(v) a part of any one of the DNA sequences of (i)–(iv) coding for a protein having the enzymatic activity of an amylosucrase; and

(vi) a full length complement of the DNA sequence of any one of (i)–(v);

wherein the host cell secretes said protein encoded by said first DNA sequence into a culture medium comprising sucrose under conditions allowing expression and secretion of said protein; and

(b) recovering the produced $\alpha$-1,4 glucans, fructose and/or fructose syrup from the culture medium.

34 (allowed): The process according to claim 33, wherein the host cell is immobilized.

35 (allowed): A process for the production of linear α-1,4 glucans comprising the steps of:

(a) producing an expression cassette comprising the following DNA sequences:

(i) a promoter that is active in plants and ensures formation of an RNA in the respective target tissue or target cells;

(ii) a DNA molecule comprising a first DNA sequence encoding a protein having the enzymatic activity of an amylosucrase, wherein said first DNA sequence has more than 60% sequence identity to a second DNA sequence selected from the group consisting of:

(1) a DNA sequence coding for a protein comprising SEQ ID NO:2;

(2) the coding region of SEQ ID NO:1;

(3) a DNA sequence encoding a protein having amylosucrase activity in the DNA insert of plasmid pNB2 (DSM 9196);

(4) a DNA sequence coding for a protein encoded by the DNA insert of plasmid pNB2 (DSM 9196);

(5) a part of any one of the DNA sequences of (1)–(4) coding for a protein having the enzymatic activity of an amylosucrase; and

(6) a full length complement of the DNA sequence of any one of (1)–(5);

wherein said DNA molecule is fused to the promoter in sense orientation; and

(iii) a signal sequence functional in plants for transcription termination and polyadenylation of an RNA molecule fused to said DNA molecule;

(b) transferring the expression cassette into a plant cell;

(c) regenerating a transgenic plant from the transformed plant cell; and

(d) isolating the linear α-1,4 glucans synthesized in the plant from the plant.

36 (allowed): The process according to claim 35, wherein the expression cassette contains a nucleotide sequence encoding a transit peptide which ensures transport of the protein having the enzymatic activity of an amylosucrase to a vacuole or to an apoplast.

37 (allowed): The process according to claim 35, wherein the DNA molecule of part (a)(ii) does not contain a signal sequence effecting secretion to the apoplast.

38 (allowed): The process according to claim 35, wherein the promoter of part (a)(i) ensures the expression of amylosucrase in sucrose storage organs of the plant.

39 (canceled)

40 (allowed): A process for the production of linear α-1,4 glucans, fructose and/or fructose syrup in vitro comprising the steps of:

(a) contacting a solution comprising sucrose with a protein having the enzymatic activity of an amylosucrase encoded for by a DNA molecule comprising a first DNA sequence encoding said protein, wherein said first DNA sequence has more than 60% sequence identity to a second DNA sequence selected from the group consisting of:

(i) a DNA sequence coding for a protein comprising SEQ ID NO:2;

(ii) the coding region of SEQ ID NO:1;

(iii) a DNA sequence encoding a protein having amylosucrase activity in the DNA insert of plasmid pNB2 (DSM 9196);

(iv) a DNA sequence coding for a protein encoded by the DNA insert of plasmid pNB2 (DSM

9196);

(v) a part of any one of the DNA sequences of (i)–(iv) coding for a protein having the enzymatic activity of an amylosucrase; and

(vi) a full length complement of the DNA sequence of any one of (i)–(v);

under conditions allowing the conversion of sucrose to α-1,4 glucans and fructose by said protein encoded by the first DNA sequence; and

(b) recovering the produced α-1,4 glucans, fructose and/or fructose syrup from the solution.

41 (allowed): The process according to claim 40, wherein the protein is immobilized.

42-46 (canceled)

47 (allowed): A process for the production of linear α-1,4 glucans, fructose and/or fructose syrup comprising the steps of:

(a) culturing a microorganism comprising a protein having the enzymatic activity of an amylosucrase encoded for by a DNA molecule comprising a first DNA

sequence encoding said protein, wherein said first DNA sequence has more than 60% sequence identity to a second DNA sequence selected from the group consisting of:

(i) a DNA sequence coding for a protein comprising SEQ ID NO:2;

(ii) the coding region of SEQ ID NO:1;

(iii) a DNA sequence encoding a protein having amylosucrase activity in the DNA insert of plasmid pNB2 (DSM 9196);

(iv) a DNA sequence coding for a protein encoded by the DNA insert of plasmid pNB2 (DSM 9196);

(v) a part of any one of the DNA sequences of (i)–(iv) coding for a protein having the enzymatic activity of an amylosucrase; and

(vi) a full length complement of the DNA sequence of any one of (i)–(v),

wherein the microorganism secretes said protein encoded by said first DNA sequence into a culture medium comprising sucrose under conditions allowing expression and secretion of said protein; and

(b) recovering the produced $\alpha$-1,4 glucans, fructose and/or fructose syrup from the culture medium.

48 (new): The method or process according to any one of claims 20, 21, 33, 35, 40 and 47, wherein the first DNA sequence has at least 70% sequence identity to said second DNA sequence.

49 (new): The method or process according to any one of claims 20, 21, 33, 35, 40 and 47, wherein the first DNA sequence has at least 80% sequence identity to said second DNA sequence.

50 (new): The method or process according to any one of claims 20, 21, 33, 35, 40 and 47, wherein the first DNA sequence has at least 90% sequence identity to said second DNA sequence.

51 (new): The method or process according to any one of claims 20, 21, 33, 35, 40 and 47, wherein the first DNA sequence has at least 99% sequence identity to said second DNA sequence.